

Chapter 4: Maintenance

Introduction

This chapter provides guidelines for maintenance tasks necessary to achieve a minimum standard of care for parkways. The guidelines focus on essential tasks. At present, DCR is undertaking a collection of data for a system-wide inventory of parkway features that will enable them to go from the basic maintenance of today to more comprehensive maintenance in the future.

The guidelines are intended to assure that parkway maintenance is consistent with rehabilitation, if not preservation treatment, as these terms are defined in *The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes*. The maintenance standard is predicated on existing capacity, both in house and contracted, for both labor and equipment. It is outside the scope of this manual to determine what financial resources are necessary to bring current maintenance practices up to an acceptable level.

Basic routine maintenance is critical to ensuring public safety as well as maintaining parkway character. The importance of consistent parkway maintenance cannot be overstated. First, the public has a right to expect an adequate level of maintenance for all parkways. Maintenance plays an important role in public safety and in the quality of the parkway experience. Obviously, the higher the volume of people using the parkway, the more wear and tear a given parkway will get. High volume parkways need more intense maintenance.

The result of inadequate parkway maintenance can manifest itself in many ways: rutting, potholes, erosion of the road surface and shoulders, clogged drain systems, crumbling walls, compacted soil, deadwood, weeds growing along guardrails, litter. Inadequate maintenance not only has a direct impact on parkway character and safety, it also creates the potential of further and accelerated deterioration of structures and vegetation. The psychological effect on the user of facilities in disrepair or overgrown sends a signal not only about lack of care but also about lack of safety. The strictest adherence to the design guidelines described in Chapter 3 in a parkway project can be nullified in a matter of a few years without adequate maintenance. Put another way, the key to maintaining parkway character and safety is preventive and corrective maintenance.

The following are goals for the maintenance of the historic parkways:

Goals

Do a parkway maintenance plan for each parkway project. If there is an existing maintenance plan, update it for current conditions and staffing. Make sure that the parkway maintenance plan is included in the system-wide database for the DCR parklands.

Increase preventive and corrective maintenance if increased funding allows staff increases and public-private partnerships are developed for each parkway.

Adhere to maintenance strategies that are ecologically sustainable, enhance visual interest, and reduce maintenance costs. Avoid environmentally hazardous pesticides, herbicides, solvents and other chemicals.

Take special precautions during maintenance or repair operations to preserve the natural surroundings within and adjacent to the work area, control erosion, and avoid injury to resources or creation of a safety hazard to parkway users.

This chapter follows the general order of the guidelines in Chapter 3 but with similar tasks lumped into more general categories.

Parkway Roadways

Pavement surfaces, shoulders, parking areas, markings or striping, landscape grading, sidewalks and pathways, and retaining walls all fall into this category.

Pavement or roadway surface

Resources for maintenance will logically focus on maintaining safe roadway conditions. Routine maintenance includes snow removal and deicing in the winter and street sweeping in the spring. Resurfacing is as needed, and includes emergency filling of potholes, and filling and sealing of cracks and potholes as needed. (Maintenance trucks may not exceed nine feet in height for clearance under bridges and overpasses.)

Shoulders

Shoulders are subject to debris accumulation, washouts and deposition of material left by runoff, which requires at least annual maintenance, and emergency attention after severe storms. Shoulder material may not be standardized; crushed stone may be appropriate in one locale, gravel in another, and grass in yet another, requiring replenishment in kind. In areas of roadside ledge, shoulders may accumulate fallen ledge debris, which needs to be cleared as soon as it falls. Shoulders should be regraded back to their original grades as necessary.

Parking areas

Routine maintenance includes keeping parking areas clear of snow and litter, and emptying the litter receptacles. Impervious pavements are subject to cracking and frost heaving and settling of improperly compacted subgrade. These conditions need to be analyzed every spring and repaired at the

appropriate time. Pervious pavements may need regrading in the spring if conditions have deteriorated over the winter.



The grass areas near the parking lot and between the boulders require weeding and mowing, Enneking Parkway, Stony Brook Reservation, Hyde Park.

Pavement Markings

Routine repainting of faded markings is among the most important maintenance tasks to maintain safe conditions on the roadway. The fresh and easily legible marking of crosswalks is particularly important for pedestrian safety. The work should be done with care to assure accurate application of striping each spring, after street sweeping is completed. Striping should be reinspected in the fall to make sure that all markings are still visible and easy to read.

Landscape grading, slopes and ledge outcrops

Landscape grading, especially within ten feet of the parkway curb, may need repair and regrading after winter snow is piled in that area. Plow damage, salt, and sand accumulation and compaction are all problems that recur every spring and need to be remedied.

Established earth slopes are subject to erosion, and exposed ledge is subject to falling rocks. All require routine monitoring for signs of instability or erosion. Debris deposited by ledge outcrops requires attention as needed, immediately if rock large enough to pose a safety hazard has fallen within the clear zone.

Sidewalks and pathways

Routine maintenance includes keeping sidewalks and pathways clear of snow and litter, and emptying the litter receptacles. Sidewalks and pathways are subject to cracking and frost heaving, settling of improperly compacted subgrade, and localized storm deposition. Deferred repair can allow invasive plants to accelerate deterioration. Repairs to sidewalks and pathways are by contract

administered by the DCR Planning and Engineering Division. The annual budget includes a modest budget for repairs, but a systematic approach to a replacement schedule for these walks is recommended.



The lack of maintenance of invasive planting along Truman Parkway in Hyde Park inhibits use of the sidewalk

Retaining walls

Walls are subject to wear and tear from water and ice damage, requiring repair that typically is not within DCR staff expertise and typically is deferred. A systematic inspection of all retaining walls is recommended at least yearly in the spring. After this inspection, minor repairs should be made and serious problems put on a capital improvements list. For guidelines on non-routine repair tasks that may more typically be addressed as part of a project, refer to the guidelines for walls in Chapter 3.

Walls are also easy targets for graffiti, which, if left uncleaned for a long time, convey a negative message about parkways and parkland care. Graffiti removal is performed as needed by contract administered by the Operations Division.

Parkway Control of Vegetation

Tree care, shrub care, grass care, vistas and overlooks, trailheads and crossings, and invasive vegetation control all fall under this category.

Roadside parkland routinely accumulates windblown litter and snowplow debris. The soil is highly vulnerable to compaction by pedestrians and stray vehicles, and the roots of trees, shrubs and grass are vulnerable to deicing chemicals and overuse by pedestrians and runners. Grass within the first ten feet of the roadway does more poorly than anywhere else in the parkway landscape, and yet is the most visible to parkway users.

An inventory, in electronic format, of all trees, shrubs and grasses should be maintained. The size, species and condition should be put into the inventory so that long-term care can be systematically planned and the cost of vegetation management and replacement can be ascertained and put in the annual operating budget.

Coded signage, flagging, fencing or other barriers should protect commonwealth-listed rare plant species during any intense use, such as a large event, during maintenance operations or during construction projects.

Tree care

Trees contribute to the beauty of a parkway more than any other natural element. Their presence, especially the mature specimens, makes the character of the historic parkways outstanding and worth preserving. Their continued survival and well-being is critical. The level of maintenance of trees must be as high as their importance.

Presently, tree maintenance is done only after storms and emergencies. Occasionally an adjacent utility maintenance project will pay for pruning the large trees in an adjacent corridor. A regular, rotating system of tree maintenance – pruning, fertilizing, pest management and replacement – is recommended.



Deferred maintenance along Alewife Brook Parkway in Somerville now requires not only clearing the pathway, but removal of a now mature tree so that the stone step can be reset.



Improper mowing has damaged a tree trunk on Blue Hills Parkway, Milton

Also, because of the listing of at least five common shade trees, Norway Maple, Sycamore Maple, Autumn Olive, Amur Cork Tree, Black Locust, on the Commonwealth's invasive plant list, planning for their replacement along the historic parkways should be done now as well.

Trees routinely accumulate deadwood, but only when a major branch is dead or an unsafe condition has arisen should tree work be undertaken. All tree work should be done under the supervision and direction of a certified arborist. In such work, large equipment and a bucket truck may be required. Special attention needs to be paid to protecting the soil and lawn when using large trucks to do tree work, to minimize compaction. No large equipment should be parked under the canopy of parkway trees at any time, to protect tree roots.

Work on live branches or healthy trees may be required in some circumstances. If a volunteer tree of a common species is significantly blocking an important view, the removal of a healthy tree or limb should be considered. In some cases where the naturalistic form of highly visible trees has been lost, judicious pruning can recover their original form.



Invasive saplings along the Internal Park Road in Bradley Palmer State Park, Topsfield, should be removed.

Shrub care

Shrub care, like tree care, needs to occur on a yearly basis in the spring. Shrub care in more rural parkway areas means occasional pruning, monitoring of shrub masses, and litter pickup. In more urban areas with high volume pedestrian, bicycle and roller blade use, the planting of shrubs should be done carefully and only in areas with little traffic because of the high mortality rate of the shrubs. Again, a regular program of fertilization, pruning, pest management and replacement is recommended. In urban areas, shrub masses can attract rats and the homeless, so careful monitoring is warranted.

Grass care

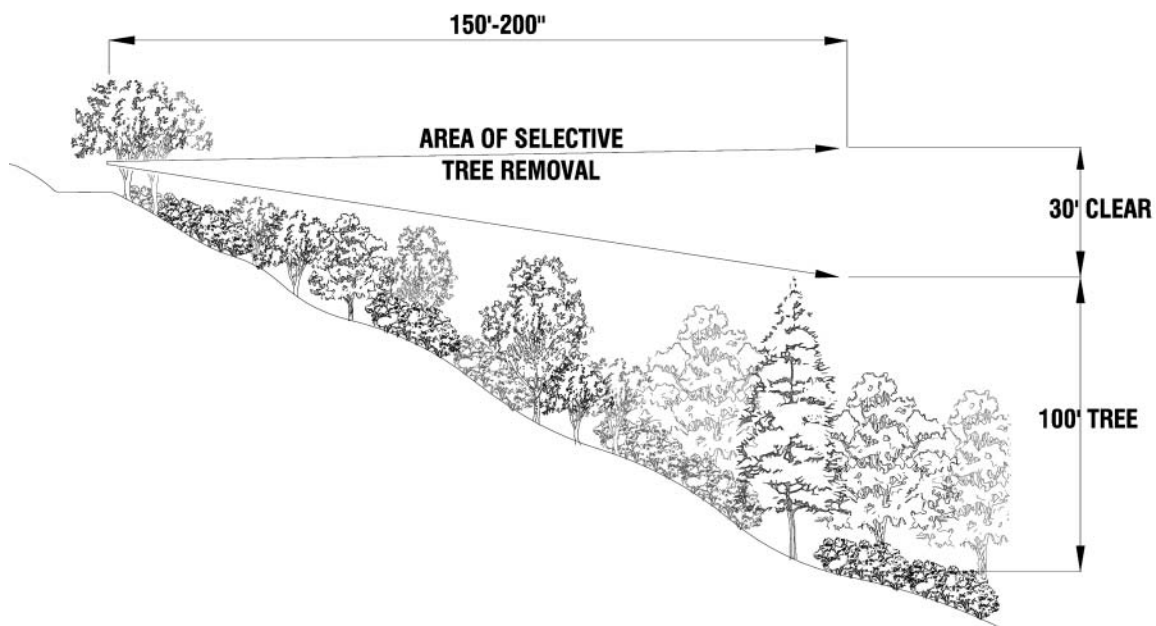
Established grass areas require not only regular mowing in season but also annual fertilizer application and weed control, and reseeding and aeration as needed. Weed removal, where weed control

has failed, is a task that unfortunately remains low on the list of maintenance priorities and needs to be put on the summer tasks list. Weeds thrive under guardrails and fencing and between boulders where mowing is difficult. Because these are highly visible locations, summer help should do hand weeding. Leaf removal needs weekly attention in the fall.

Vistas and overlooks

The maintenance of vistas or special view corridors requires monitoring every two years to make sure that the character-defining views to the water, the beach or the long view of the valley below are maintained for parkway users. The decision to clear each tree must be made by a certified arborist, with sensitivity to the specific characteristics of the local plant community. The arborist should retain any uncommon or important habitat species, and remove all invasive species, as identified in the Design Control Report. Substantially disturbed vista maintenance areas cannot be left bare and vulnerable to erosion. Replanting with an appropriate seed mix on disturbed slopes and erosion control matting will help stabilize banks.

Summit Roads, where side slopes may approach 1.5:1, may require selective thinning or clearing of volunteer trees within 200 feet of the roadway, for a distance of at least 100 feet along the roadway. Vista corridor maintenance operations should avoid disturbance of Commonwealth-listed Rare Species and Natural Communities, identified by the Massachusetts Division of Fisheries and Wildlife (DFW) Natural Heritage and Endangered Species Program (NHESP). No new vistas should be created in these areas, within delineated wetlands or woodland vernal pools. Even for existing vistas, any unnecessary clearing of vegetation, regrading, planting, or dumping of materials within these areas should be avoided. The maintenance activity may require a Conservation Permit for listed species.



Conceptual vista clearing (Vollmer Team, Mount Greylock Historic Parkway Assessment for DCR, March 2003).

Trailheads and crossings

Other special vegetation maintenance areas are trailheads and crossings. These areas must be pruned back so that the trailheads and important crossing areas are visible to trail users at all times. Spring and fall inspections of these areas are recommended. Pruning should be done under the supervision and direction of someone skilled in shrub and tree pruning.

Invasive vegetation control

Invasive species and weed trees, which are second growth volunteer species, are an issue on all parkways. The 2006 Commonwealth Invasive Plant List is included in Appendix L of these guidelines. Each parkway should update its maintenance plan with a new phased plan to eliminate all the specified invasive plants within the parkway. While some of these plants can be easily eliminated, most of the invasive plants are difficult to eradicate and it often takes a three-year program to get rid of them. The invasive tree eradication should be phased in over a ten-year period, because several of the trees listed have helped form the distinctive character of the parkway. The shrub, perennial and grass plants are easier to replace with native plantings because they are not as visible and character-defining.

Invasive eradication is especially sensitive on Internal Park Roads, which lie in the heart of parkland that is likely to be among the least disturbed plant communities in its region. These species will have been identified in the Design Control Report; for sites without such documentation, regional data will be helpful. The Nature Conservancy Wildland Weeds Program 2002 provides specifics for such rapidly spreading species as garlic mustard, which is already a threat at Mount Greylock.

Parkway Site Elements

Traffic barriers, guardrails, gates, fencing, railings, signs, trailheads, benches picnic tables and trash receptacles all fall into this category.

These site elements add safety, comfort and information to both the vehicular and pedestrian environments. The condition of the parkways is probably most evident if there is vandalism or disrepair in any of these elements. Overall, there should be an inventory, in electronic format, of all these elements so that they can be replaced periodically and repaired as needed. Readily accessible replacement items or parts are especially important for these items.

Traffic barriers and guardrails

Maintenance of guardrails is typically by contract administered by the Planning and Engineering Division and, in the case of post-collision repairs, coordinated with insurance companies. Given that the annual operating budget includes only a modest budget for repairs, they are typically concentrated in areas where there has been significant enough damage to create a safety hazard for vehicles, cyclists or other users. Over time, a regular system of spring inspection for all traffic barriers and guardrails and summer repair is recommended.



The timber guardrail in Joseph Allen Skinner State Park in Hadley leans from vehicular impact.

Gates, fencing, railings

Like the guardrails, the current maintenance is administered by the Planning and Engineering Division and is concentrated in areas where there is a safety threat. The gates, fencing and historic railings are important character-defining features of the historic parkway system, and a regular system of maintenance and repair is recommended.



The repair of the railing at Alewife Brook Parkway in Somerville did not include repainting the adjacent section to match the new section.

Signs

Well-maintained signage is important for safety and enhancing the parkway experience. Signs in disrepair—especially problems with support, the legend, or reflectivity—undermine the message

that DCR parkways are special and receiving adequate care. A regular inspection of their condition and immediate replacement of missing parts is warranted.

Trailheads and trail crossings

As in the parkway vegetation control section of this chapter, the regular inspection of the trailhead and crossing signs and directional information is needed to protect the parkway users' safety.

Benches, picnic tables and other site furniture

While these parkway site elements are not always as visible from the parkway road, their condition sets the tone for the pedestrian parkway experience. If the benches or picnic tables are vandalized or have broken parts, pedestrians will feel less safe in this environment and may curtail their use of the parkways. Graffiti on site furniture needs to be removed immediately to foster a sense of the parkway being well watched and maintained. The site elements themselves should be inspected twice a year, in the spring and the fall, for any missing pieces. If the broken part does not affect any safety, it can be replaced during the summer or winter months. If there is a safety issue, the part should be replaced immediately.

Trash receptacles

Trash or litter baskets need daily attention during the months that the parkways are actively used. Each parkway should have a Design Control Report and a maintenance plan. Those two documents should determine how often the trash is picked up during the different seasons of the year. The trash receptacles themselves should be inspected in the spring and fall and replaced with new receptacles if warranted, or else repaired.

Parkway Utilities

Utilities other than drainage, traffic signals and lighting fall under this category.

Utilities

Local utility companies maintain electric, telephone and telecommunication, and gas service, on and adjacent to DCR land. The utility company gets permission to enter DCR parkland for routine maintenance and upgrading service. This is a DCR management issue because any routine maintenance service by these companies must first deal with educating the outside utilities about the fragile natural environment where they will work. The utilities staff need to understand that their equipment is in or adjacent to a natural parkway area that is enjoyed by many people on a daily basis. It is not a typical repair on a municipal street. DCR needs to monitor the utility to assure safety and resource protection, and restoration of the landscape to pre-construction conditions.

Traffic signals

Traffic signals within the parkway are also under different ownership. The ones owned by DCR and MassHighway also require maintenance of the Boston Traffic Department loop detectors. DCR has the added management responsibility for notifying all the owners of any signal malfunction. An annual monitoring of all traffic signals and their standards will identify which will need summer repair.

Lighting

Maintenance of lighting on or adjacent to DCR land depends on the ownership of the lights. DCR maintains the streetlights that it owns, which are typically the historic “1907” fixtures. However, most lighting along parkways is not owned by DCR. It is usually owned and maintained by the local electric utility. Again, this is a management issue, requiring DCR monitoring of the utility to assure safety and resource protection, and restoration of the landscape to conditions as good as or better than preexisting conditions.

DCR is phasing in programs of relamping the parkway lights with full cut-offs, and of converting all parkway fixtures to the historic “1907” or a parkway-appropriate fixture.

Parkway Drainage Utilities

Drop inlets, catch basins, stone ladders, paved and grass waterways or swales, and headwalls fall under this category.

Drop inlets, catch basins, and stone ladders

Check the structural condition of all drainage structures, inlets, outlets, sumps, and piping yearly. The cleaning of the sumps should be on a regular maintenance program, from four times to once a year, depending on the volume of use of the parkway and the use of salt and sand. In the annual check, needed repairs for the structures are noted for repair in the summer months. If the structure is seriously damaged, it is listed for replacement. Grills and grates need cleaning after big snow and rain storms and in the fall after the leaves drop to keep them workable.

Paved waterways or swales

In the spring, these need to be checked for any cracks or holes in the waterway surface. Swales need to be checked for the structural integrity of the pavement or stones for washouts. If the damage is minor, it needs to be repaired in the summer months. If the damage is major, it should be listed for structural work within the same year if possible.

Grass waterways or swales

In the spring, these need to be checked for erosion and clean debris. The sub drain system should be inspected for structural problems which should be repaired in the summer months. Erosion areas should be reseeded with grass using rye grass, as a nurse crop, mixed with the appropriate seed mix for the parkway. Slopes greater than 5% need erosion control matting as well. The grass should be mowed to the proper height as per the parkway maintenance plan.



Erosion near the Estate Road bridge at Maudslay State Park in Newburyport requires immediate attention.

Headwalls

After the spring rains, the headwalls should be checked for internal drain line damage and structural damage to the headwall itself. Minor repairs should be made in the summer months and any volunteer vegetation removed yearly. Major structural damage to the headwall structure should be listed for major repair or replacement using the same materials.



Deferred maintenance on Wickett Pond Road in Wendell State Forest has left the culvert clogged.



Permanent markers will help assure that all culverts are regularly monitored (Summit Road, Mount Sugarloaf State Reservation in South Deerfield)

Maintenance Guidelines

The following matrix details maintenance tasks.